ART. I.—*Further Descriptions of the Tertiary Polyzoa of Victoria.—Part IV.*

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(With Plates I. and II.)

[Read 19th April, 1900.]

Cellaria biaperta, n. sp. (Pl. I., Fig. 1).

Zooecia obscurely hexagonal, almost diamond-shaped, with linear margins which are sometimes straight longitudinally for a short distance between the zooecia; thyrostome semicircular, above the middle of the zooecia, two denticles in the lower margin; at the apex of the zooecia a somewhat semicircular opening (ovarian?); avicularia triangular, with rounded angles, cucullate, with a deep oval cavity.

Locality.—Muddy Creek (T. S. Hall).

A single zoarium. The zooecia are pointed at the distal and proximal ends; the semicircular opening which is present in almost every zooecium may, I think, be ovarian. It is allied to *C. laticella*, but the avicularium is different, and this feature is now recognised as the most distinctive characteristic in *Cellariae*.

Cellaria biseriata, n. sp. (Pl. I., Fig. 2).

Zoarium in flat internodes composed of two rows of zooecia on each face. Zooecia subtriangular; surface smooth; margins linear, raised; thyrostome close to distal end, semicircular; two denticles in lower lip; a small crescentic lobe projecting under the distal margin.

Locality.—Grice's Creek, Mornington (T. S. Hall).

A single specimen in good preservation. The zoarial and zooecial characters are very distinctive.

Membranipora spiculifera, n. sp. (Pl. I., Fig. 3).

Zoarium cylindrical, dichotomously branched. Zooecia oval, area large; margin narrow, raised, with a series of small mamillae, probably the bases of spines; ooecia globose, with subtriangular area in front.

Locality.—Mitchell River (J. Dennant).

This is near *M. geminata*, but it is much more delicate; the margins are not so thick as in that species and there is no trace of a "sloping plate" in the distal end of the zooecia.

Membranipora morningtoniensis, n. sp. (Pl. I., Fig. 4).

Zooecia oval; area very large; margin raised, with six (or more) irregularly branched spines at the distal end.

Locality.—Mornington (T. S. Hall).

I have found only the small fragment figured, in which there is but one zooecium at all perfect (a small portion of the margin on the left hand side is broken away), but the numerous irregularly shaped spines at the distal end show it to be quite distinct from any other species.

Membranipora dennanti, n. sp. (Pl. I., Fig. 5).

Zoarium encrusting. Zooecia irregularly oval; area subtriangular, or subquadrangular, with the angles rounded; avicularia large, mandible long, acute, slightly curved; a large perforation or open space above. Ooecia globose, with a faintly marked frontal area.

Locality.—Mitchell River (J. Dennant).

This belongs to the "*flemingii*" group. The perforation or uncovered space in the cell wall above the avicularium is a very peculiar feature, but is said by Mr. Waters[1] to occur in *M. curvirostris* and *M. permunita*.

Membranipora incurvata, n. sp. (Pl. I., Fig. 6).

Zoarium encrusting. Zooecia irregularly hexagonal, very flat, margins sulcate; area oval, large, surrounded by a narrow mamillated border, which incurves near the distal end.

Locality.—Fyansford (T. S. Hall).

The single specimen figured. The zooecia are large and very flat. The small elliptical prolongation of the area distally formed by the incurved margin is peculiar, and may possibly represent ooecia broken away, but there is no trace of an ooecial cell in the cavity, the dorsal wall is quite smooth internally.

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[1] Linn. Soc. Journ., 1898, p. 684.

Amphiblestrum crassissimum, n. sp. (Pl. I., Fig. 7).

Zoarium very robust, somewhat glomerate. Zooecia with very thick cell walls, ovate; margins of area broad, raised, slightly concave on the surface; in the dorsal wall there is on each side a large perforation, and on the lower median portion a still larger one; 2·10 spines on distal margin.

Locality.—Filter Quarries (T. S. Hall).

This is a remarkably robust species, with thick smooth walls. It is quite distinct from any other. Some of the zooecia are truncate, with the distal and dorsal wall incurved, while others are not truncated, but have the distal margin convex, with traces of spines. In these the peculiar perforated structure of the dorsal wall is not seen, save in one (the extreme left hand one), in which one of the lateral perforations is visible, and in the lowest one in the figure, in addition to the thickened distal margin with spines, there is a semicircular structure with a row of spines or perforations, which probably represents the front of an ooecium, as, at the extreme proximal part, there is apparently the remains of the distal portion of a zooecium.

Amphiblestrum robustum, n. sp. (Pl. I., Fig. 8).

Zoarium cylindrical, branched dichotomously, robust. Zooecia large, oval, four in lateral series; surface smooth, a few spines round the margin.

Locality.—Filter Quarries (T. S. Hall).

This also is a very robust species. The margins probably bore spines all round, but the bases of a few only (in different positions) are preserved.

Amphiblestrum bispinosum, n. sp. (Pl. I., Fig. 9).

Zoarium in vincularia form, quadrate. Zooecia in single linear series on each of the four faces, very large, quadrate, elongate; area oval or subquadrate, opesia subquadrate, narrower at distal end; a large pore on each side of the margin, near the distal end; whole surface minutely granular.

Locality.—Mitchell River (J. Dennant).

This is a very large-celled species; the pore on each side of the opesia may represent either a small avicularium or, more probably, the base of a large spine.

Amphiblestrum concavum, n. sp. (Pl. I., Fig. 10.)

Zooecia of very irregular shape, from triangular to oblong; surface slightly concave, the marginal portion being raised, especially in the distal part, but not thickened in any way; opesia also irregular in form, oval to quadrate, margins slightly thickened; surface covered with minute granulations; narrow sulci between the zooecia; avicularia raised, oval, with triangular mandible, a bar and semicircular cavity.

Locality.—Mitchell River (J. Dennant).

A single specimen.

Pyripora catenularia, (Jameson, sp.)

In some material from Spring Creek I have found a specimen of this species. Mr. Waters records it from Curdie's Creek in Q.J.G.S., Vol. XXXVII., p. 323, under the name of *Membranipora catenularia*. Dr. MacGillivray in P.Z.V., dec. XI., gives reasons for retaining D'Orbigny's genus *Pyripora*. It is not included in the species described in his monograph.

Selenaria cribrosa, n. sp. (Pl. II., Fig. 11).

Zooecia irregularly hexagonal, with wide inwardly sloping margins; aperture arched above, sides and lower margin straight, edges crenulated; vibracular area very large, cribriform. Dorsal surface furrowed, very slightly granulated.

Locality.—Gippsland (Rev. A. W. Cresswell).

In the two specimens I have, the large cribriform vibracular plates (much larger than the zooecia) are mostly broken away, the open spaces show as vacuities sufficiently large to be visible to the naked eye, and give a peculiar spotted appearance to the zoarium. This and the shape of the aperture (opesia) show it to be quite distinct from any other species.

Caleschara parva, n. sp. (Pl. II., Fig. 12).

Zooecia ovate, not contracted below; an open space below the thyrostome, from the thickened lower margin of which a narrow calcareous plate projects, and is united to the underside of the proximal margin of the opening. Ooecia quadrate, but globose.

Locality.—Mitchell River (J. Dennant).

This much resembles *C. denticulata*, but is smaller; the zooecia are of a different shape and do not encroach on one another longitudinally, as in that species. The structure of the opening below the thyrostome is not exactly the same. In this species the margin of the opening is continuous, and the plate, projecting over it, is united to under side of the lower part; in *C. denticulata* it is on a level, and is continuous with the front wall, the open spaces being quite distinct, whereas in this species the opening shows as a single one with a bar or plate, which does not interrupt the margin. The ooecium also is very different from that of *C. denticulata*, as figured by Dr. MacGillivray in P.Z.V., pl. 48.

Thalamoporella rosieri (*Audouin.*) *form* longirostrata, nov. (Pl. II., Fig. 14).

Zoarium bilaminate. Zooecia in linear series, oblong with distal end rounded; margins raised; no "tubercles" near the opesia, which is suborbicular; two large foramina below the opesia; the proximal part of the intervening cell-wall depressed below the level of the front of the zooecia. Avicularian cell very long, mandibular cavity long and pointing distally.

Locality.—Jimmy's Point, Gippsland Lakes (J. Dennant).

This differs from the four varieties of *T. rosieri*, described by Mr. Hincks in A.M.N.H., ser. 5, vol. VI., p. 379, where he sums up their distinctive features as follows:—

"1. Normal form, with marginal tuberosities and large bilobate ooecium; avicularia none.

2. Form *gothica*. With marginal tuberosities, destitute of ooecia; avicularia large, with triangular mandible. Mazatlan and California.

3. Form *indica*. Without tuberosities; avicularia large, with somewhat elongated slender pointed mandible. Large bilobate ooecium. India.

4. Form *falcifera*. With marginal tuberosities; avicularia large, with much elongated tapering falciform mandible. Ooecium (?). Australia."

The form I now describe differs from the normal in having avicularia and no tuberosities; it is near form "*Indica*," with which it agrees in having no perceptible "tuberosities," and has

avicularia which, however, are very much longer than the zooecia, those of *Indica* being only about half the length; and it differs from all the forms in being bilaminate, and in the calcareous extension below the opesia, between the foramina being very narrow and depressed proximally below the surface of the ooecia, causing the proximal margin of the open space to be continuous, and the foramina, consequently, not be so distinctly, or distally, separated, as in the other varieties. This feature is much more marked in the following species, in which, however, there are other characteristics which separate it from *T. rosieri* and its varieties.

Thalamoporella gracilis, n. sp. (Pl. II., Fig. 13).

Zoarium cylindrical, about six zooecia in transverse direction. Zooecia elongate, sides straight, arched above, margins raised: opesia subcircular, below it an opening with a downward prolongation of the upper margin, reaching and united to the under surface of the lower margin; avicularia oval, pointed proximally.

Locality.—Jimmy's Point, Gippsland Lakes (J. Dennant).

I found numerous specimens of this species in the deposit. It differs from the preceding one in the following particulars:—The zoarium is cylindrical or in Vincularia-form, the zooecia are much smaller, there is a very slight tuberosity on each side of the opesia, the calcareous process dividing the two foramina is much narrower, is not always central, and in some instances does not appear to be connected with the proximal margin causing the two foramina to appear as a single opening in a much more marked manner than in the preceding species; the avicularia are shorter, have a stout bar, and point proximally, not distally as they do in all the varieties of *T. rosieri* which have them.

Palmicellaria quadrifrons, n. sp. (Pl. II., Fig. 15).

Zoarium free, erect, quadrate. Zooecia in single series on each of the four faces, tubular, with perforations on the inner margin, distal part projecting; thyrostome suborbicular, with raised thin peristome, on one or both sides of which is an avicularium with a globular base, on the inner edge of which are two small tubular projections; the mandible is triangular, and opens into the inside of the peristome.

Locality.—Cape Otway (Hall and Pritchard).

The great peculiarity of this species is the form of the avicularia, which is globular. I took them at first to be ooecia, but an examination of a specimen with some zooecia with only one avicularium at the side of the peristome showed their true character, and that the mandible opened into the inside of the peristome. In those zooecia which have an avicularium on each side of the peristome, the mandibular area is not visible. The small tubular projections are probably the bases on which spines were articulated.

Palmicellaria uniserialis, n. sp. (Pl. II., Fig. 16).

Zoarium free, phytoid. Zooecia in single series, elongated, almost tubular, with a rib on each side and one on the middle of the dorsal surface; peristome slightly everted; a row of pores on the inner edge; ooecia small, subglobose. A few perforations round the base.

Locality.—Mitchell River (J. Dennant).

This I place provisionally in *Palmicellaria*, though it differs from that genus in being uniserial, but, as zooecial characteristics are more relied upon for generic classification than zoarial, I have probably placed it correctly. It is allied to the preceding species as the zooecia are of similar shape. I have seen no avicularia. The specimen figured is the only one that shows an ooecium; I have one or two consisting of two zooecia, but the majority of the specimens are single zooecia.

Characodoma, nov. gen.

Zoarium in elongated quadrate internodes. Zooecia uniserial on each face of the zoarium. Thyrostome ovate with a sharp denticle on each side pointing downwards over the lower or distal, triangular portion.

Characodoma halli, n. sp. (Pl. II., Fig. 17).

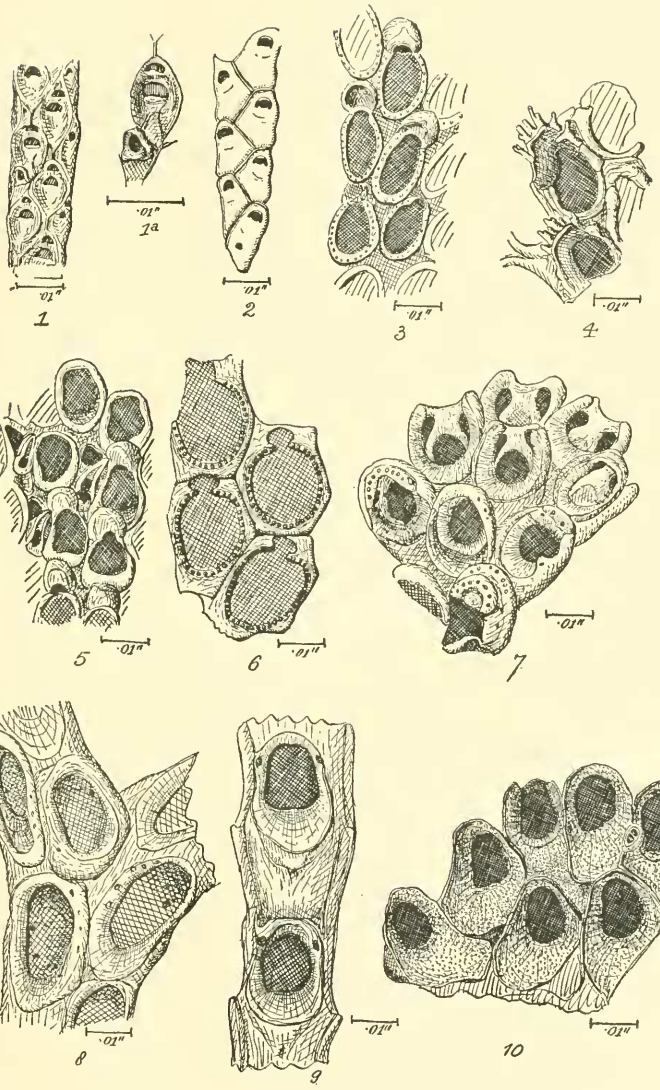
Characters as for genus, but the fertile and infertile zooecia differ considerably. The infertile are suborbicular in shape, convex, covered with mamillae of various sizes; an avicularium, on a more or less prominent elevation, with a triangular mandible on each side (occasionally on one side only) of the thyrostome, which is ovate with a sharp denticle on each side pointing downwards; the lower or proximal portion being subtriangular.

The fertile zooecia are obscurely hexagonal with much elevated very rugose and irregularly nodulated margins, forming a pallisade round the central area which is depressed and smooth; thyrostome the same as in the infertile zooecia; an avicularium on one or both sides of the thyrostome with a triangular mandible; ooecia reniform, densely punctate. Below the lowest zooecium in the internode figured there is a large spatulate avicularium with the mandible placed horizontally, below which the zoarium is attenuated downwards. Similar avicularia occur occasionally on zoaria bearing infertile zooecia in the same position, and also on other parts of the zoarium, causing then a slight irregularity in the disposition of the zooecia.

Localities.—Mornington (T. S. Hall); Mitchell River (J. Dennant).

The portion of the fertile zoarium figured is part of a solitary specimen from Mornington, and is that from which I determined the genus and species; but after having done so I obtained a large number of specimens from the Mitchell River deposit, most of which were composed of infertile zooecia, a few had fertile, and one or two both fertile and infertile zooecia. The specimen from Mornington is the only one which shows the ooecia perfect; in those from the Mitchell River only the base or dorsal wall is preserved, the front wall having been broken or worn off. The perfect internode in all cases is about 0·15 of an inch long, but the fertile and infertile ones differ in the width, the former being 0·027 of an inch in diameter, the latter 0·020.

This is a very interesting and instructive form as it shows the very great and very remarkable difference that may occur between the fertile and infertile zooecia of the same species especially when one specimen bears an ooecium on every zooecium, and another has none; indeed, had I not found some specimens with both fertile and infertile zooecia I would have considered them to be different species, for in the fertile zooecia, as stated above, the front is depressed and smooth with a very much raised rugose border or margin, like a fence or pallisade, while in the infertile zooecia the front is very convex and covered with mamillae. The only features in common being the thyrostome, the avicularia by the side of it, the large spatulate avicularia and the zoarial structure.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